This listing of claims will replace all prior versions and listings of claims in this application:

b.) Listing of Claims

What is claimed is:

1. (Currently amended) A microscope system for detecting and compensating for changes within a recorded image content of a microscopic specimen comprising:

a microscope that defines an illuminating light beam and a detected light beam, at least one objective, an XYZ stage;

a scanning module with a gimbal-mounted scanning mirror which guides the illuminating light beam over or through a specimen;

a detector module having at least one detector; ~~and~~

a computer system which has a means for calculating signatures of a recorded multidimensional image having a number of dimensions varying between 2 and higher than 3, and a means for calculating statistical signature parameters;

multiple positioning motors and actuators are provided on the microscope; and

at least one software module, which supplies to the positioning motors or actuators control signals ~~that can be ascertained~~ ascertainable from the signature parameters.

2. (Original) The microscope system as defined in Claim 1, wherein the software module records and observes changes in the signatures, derives signature parameters, and ascertains control signals from the signature parameters on the basis of an inference method.

3. (Currently amended) The microscope system as defined in Claim 1, wherein changes in scan parameters can be determined from the ascertained signature parameters; and the scan parameters include at least one ~~encompass the~~ image format, a position of the XYZ stage, an electronic zoom, an objective selection ~~change~~, galvanometer positions, and spectral scan bands.

4. (Original) The microscope system as defined in Claim 1, wherein the microscope is a scanning microscope (100).

5. (Original) The microscope system as defined in Claim 4, wherein the scanning microscope is a confocal scanning microscope.

6. (Original) The microscope system as defined in Claim 1, wherein the signature parameters encompass at least one statistical parameter of the signature interpreted as a distribution function, wherein the distribution function is mean or variance or moments or quartiles or skewness or median or maximum and minimum.

7. (Currently amended) A method for detecting and compensating for changes within a recorded image content of a microscope specimen using a microscope, comprising the steps of:
   a) scanning a specimen with a gimbal-mounted scanning mirror which guides an illuminating light beam over or through a specimen ~~with an illuminating light beam~~ and recording multiple image points for generation of a multidimensional image having a number of dimensions varying between 2 and higher than 3 ;
   b) calculating signatures of the recorded multidimensional image;
   c) calculating statistical signature parameters from the recorded signatures;
   d) observing and ascertaining the changes in the statistical signature parameters; and
   e) interpreting the changes in the signatures and converting them into signals for positioning motors or actuators that are provided in the microscope system.

8. (Original) The method as defined in Claim 7, wherein the interpretation of the changes in the signatures, and the conversion into signals for positioning motors or actuators, are accomplished by means of a software module that records and observes changes in the signatures, derives signature parameters, and ascertains control signals from the signature parameters on the basis of an inference method.

9. (Currently amended) The method as defined in Claim 7, wherein changes in scan parameters can be determined from the ascertained signature parameters; and the scan parameters include at least one ~~encompass~~ image format, a position of the XYZ stage, an electronic zoom, an objective selection ~~change~~, galvanometer positions, and spectral scan bands.

10. (Original) The method as defined in Claim 7, wherein the signature parameters encompass at least one statistical parameter of the signature interpreted as a distribution function, examples being mean, variance, moments, quartiles, skewness, median, maximum, and minimum.